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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,947	04/10/2001	Junji Yamada	205650US3	6993

7590

08/21/2003

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EXAMINER

MITCHELL, JAMES M

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 08/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/828,947	Applicant(s) YAMADA, JUNJI	
	Examiner James Mitchell	Art Unit 2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 3 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the specification for both a nut engaging a screw member and the terminal having a female hole (APA, Page12 indicates that due to the female hole in the terminal there is no need for the nut).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the word nominal further limits the scope of diameter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 4, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masumoto et al. (U.S. 5,646,445) in view of applicant's admitted prior art and Masahiro (JP07-279109).

Masumoto (Fig. 29) discloses a power semiconductor module with a connection structure that has an electrode terminal (1,2) including a first end connected with a power semiconductor device (E2), which is resin sealed (41,42) inside a case (11), a second end of said terminal exposed along the outer surface of the case with an embedded nut (31) with a female screw hole (Line 18, Column 2) provided on a side of outer surface of the case, and a male screw member ("bolt", Lines 19-20, Column 2) having screw threads wherein inherently the screw member has different nominal diameters at different ends (via diameter portion including thread on one end versus portion diameter non-threaded portion [groove between thread]) an end is threadedly

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engaged with the female screw hole, and a portion of the male screw extends through the electrode terminal.

Masumoto does not disclose the terminal as being electrically connected to an electrode plate for external connection with a male screw having a second threaded end passes through a hole of the electrode plate and a second end engages a nut.

However, applicant's admitted prior art (Fig. 9) utilizes an electrode terminal being connected to an electrode plate (97) wherein a portion of the screw passes through a hole in an electrode plate.

It would have been obvious to one of ordinary skill in the art to connect the terminal of Matsumoto to an electrode plate, such that a screw passes through a hole in the electrode plate in order to form an external connection as admitted by applicant (Lines 18-19, Page 2).

As for a male screw having an end that engages a nut, Masahiro teaches the use of engaging a nut to the end of a screw where the other end is inserted in a female hole.

It would have been obvious to one of ordinary skill in the art to use a screw with both ends threaded wherein one end is inserted in a female hole in order to provide fastening bolt as required by Masumoto, further it would have been obvious to one of ordinary skill in the art to engage a nut to the other end of the male screw in order to hold the items beneath the nut to the body of the package (i.e. electrode plate to the external terminal and package) as taught by Masahiro (English Constitution).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto, APA and Masahiro as applied to claim 1 and further in view of Takegawa (JP 09-55462).

Neither Matsumoto, APA or Masahiro show the terminal with a female screw hole formed therein, however Takegawa utilizes a female screw hole within a terminal.

It would have been obvious to one of ordinary skill in the art to modify the combined terminal structure of Matsumoto and APA by incorporating a female screw hole within the terminal in order to lessen the manufacturing cost of the semiconductor by dispensing with the fixing nut as taught by Takegawa (Abstract Solved, Lines 1-3).

Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto, APA and Masahiro as applied to claim 1 and further in view of Abe (U.S. 4,018,132).

The prior art does not show the threads of a screw or bolt at opposite ends having threads of opposite direction or with a middle portion having no screw thread.

However, Abe (Fig. 3) utilizes a screw or bolt at opposite ends having threads of opposite direction and a middle portion having no screw thread.

It would have been obvious to one of ordinary skill in the art to form the screw of Masumoto with of a screw or bolt having threads of opposite direction at opposite ends and with a middle portion having no screw thread, in order to increase the mechanical strength of the bolt as taught by Abe (Lines 30-31, Column 1).

Response to Arguments

Applicant's arguments filed October 25, 2002 have been considered but are moot in view of the new ground(s) of rejection. However to expedite prosecution of application, examiner will address present argument's that may be applicable to the new rejection.

In response to applicant's argument that the prior art male screw is non analogous art because it didn't pertain to a semiconductor module, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the prior art is pertinent to the particular problem of fastening a screw.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Mitchell whose telephone number is (703) 305-0244. The examiner can normally be reached on M-F 10:30-8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3230 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Jmm
August 3, 2003

let me know

DAVID E. GRAYBILL
PRIMARY EXAMINER